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Worksheet: Electricity

1. Let the resistance of an electrical component remains constant while the potential difference across the two ends of the component decreases to half of its former value. What change will occur in the current through it?
2. Compute the heat generated while transferring 96000 coulomb of charge in one hour through a potential difference of 50 V
3. How much energy is given to each coulomb of charge passing through a 6 V battery?
4. What is meant by saying that the potential difference between two points is 1 V?
5. Calculate the resistance of a metal wire of length 2 meters and cross-sectional area 1.55 × 10■■ square meters, if the resistivity of the metal is 2.8 × 10■■ ohm meter.
6. Name a device that you can use to maintain a potential difference between the ends of a conductor. Explain the process by which this device does so.
7. An electric iron of resistance 20 Ω takes a current of 5 A. Calculate the heat developed in 30 s.
8. Name a device that helps to maintain a potential difference across a conductor.
9. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?
10. Why are alloys commonly used in electrical heating devices ?
11. Why are metals good conductors of electricity whereas glass is a bad conductor of electricity ? Give reason.
12. What determines the rate at which energy is delivered by a current?
13. What is the maximum resistance which can be made using five resistors each of 1/5 Ω ?
14. How is the resistivity of alloys compared with those of pure metals from which they may have been formed?
15. Define the unit of current.
16. Calculate the resistivity of the material of a wire of length 1 m, radius 0.01 cm and resistance 20 ohms.
17. Why does the cord of an electric heater not glow while the heating element does?
18. What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series?
19. List the factors on which the resistance of a conductor in the shape of a wire depends.
20. What does an electric circuit mean?